

**Response Action Contract
for Remedial, Enforcement Oversight, and Non-Time
Critical Removal Activities at Sites of Release or
Threatened Release of Hazardous Substances
in EPA Region VIII**

U.S. EPA Contract No. 68-W5-0022

**Draft Technical Memorandum
For
The Contaminant Screening Study
Libby Asbestos Site, Operable Unit 4
Libby, Montana**

**Work Assignment No.: 116-RIRI-08BC
Document Control No.: 3282-116-RT-OTHR-17126**

March 6, 2003

**Prepared for:
U.S. Environmental Protection Agency
Region VIII
999 18th Street, Suite 500
Denver, Colorado 80202**


**Prepared by:
CDM
1331 17th Street, Suite 1050
Denver, Colorado 80202**

Response Action Contract
for Remedial, Enforcement Oversight, and Non-Time
Critical Removal Activities at Sites of Release or
Threatened Release of Hazardous Substances
in EPA Region VIII


U.S. EPA Contract No. 68-W5-0022

Draft Technical Memorandum
For
The Contaminant Screening Study
Libby Asbestos Site, Operable Unit 4
Libby, Montana

Work Assignment No.: 116-RIRI-08BC

Prepared by: 
For Dee Warren
CSS Task Leader

Date: 3/6/03

Reviewed by: 
For Dave Schroeder
Technical Reviewer

Date: 3/6/03

Contents

1.1	Introduction.....	1-1
1.2	Summary of 2002 Activities	1-1
1.2.1	Property Reconnaissance.....	1-1
1.2.2	Property Soil Sampling.....	1-2
1.3	Property Categories.....	1-2
1.4	Field Activities for the 2003 Field Season.....	1-4
1.4.1	Indoor Only Contamination Confirmed	1-5
1.4.2	Outdoor Only Contamination Confirmed	1-5
1.4.3	Indoor and Outdoor Contamination Confirmed	1-5
1.4.4	Indoor Only Sampling Required	1-5
1.4.5	Outdoor Only Sampling Required	1-6
1.4.6	Indoor and Outdoor Sampling Required	1-6
1.4.7	Indoor Contamination Confirmed and Outdoor Only Sampling Required	1-6
1.4.8	No Further Action.....	1-6
1.5	Summary.....	1-6

Attachments

Table 1	Property Categories - Decision Process
Table 2	Property Categories - Query Criteria and Property Totals

1.1 Introduction

why → This Technical Memorandum will provide a brief summary of the Contaminant Screening Study (CSS), 2002 field activities as well as present the available data collected during this effort. The majority of the analytical results from soil samples collected during the CSS have not been analyzed. Therefore, a complete summary of the 2002 CSS program will not be provided at this time. Once data are available the complete summary will be provided in the "Draft Libby Remedial Investigation Contaminant Screening Study Technical Memorandum". Until that time, CDM understands and has discussed with EPA that the primary focus of this Technical Memorandum is to use data currently available from the 2002 CSS to plan the 2003 field activities.

In order to plan for the 2003 field program, every property in the Libby study area was placed into one of eight categories. These project specific property categories were selected to "group" properties in order to determine the type (i.e., inspection or sampling) and amount of work that remains to complete the investigation phase at each property. These category groupings and associated category totals will also support the removal/design planning activities. This information is preliminary but is considered sufficient for developing and planning the 2003 field season. clear-up also

1.2 Summary of 2002 Activities

The CSS program was designed to use the combination of visual inspections, interviews, and soil sampling to screen each property in the study area for the presence or absence of potential sources of Libby Amphibole (LA). This screening and sampling focused on areas where vermiculite products were most likely to be encountered (e.g., attic insulation and garden soil) and where the potential disturbance and exposure to LA containing vermiculite was most likely to occur (e.g., near-surface soils). This was a two-step process consisting of a property reconnaissance to collect background information about the property followed by a soil sampling event. Reference the SAP here. Discuss any changes to rationale. Put key recon docs examples in this pkg. (IFF's)

1.2.1 Property Reconnaissance

Property reconnaissance included conducting visual inspections and property owner interviews at each property. The reconnaissance teams were responsible for contacting residents, obtaining signed property access agreements, assigning location identification numbers to structures on a property for use with GIS, obtaining digital photographs of the building(s) located at each property, and completing the information field forms (IFFs). Reconnaissance team information used in support of this Technical Memorandum consisted primarily of answers to seven specific questions included on the IFF. These questions were:

- Is there any knowledge of former miners, close relatives of miners, or any highly exposed persons living at or visiting the property?
- Is the resident, past or present, diagnosed with an asbestos related disease?

- Does the interior have vermiculite attic insulation?
- Did the interior ever have vermiculite attic insulation?
- Are there vermiculite additives in any of the building materials?
- Is there any evidence of primary source materials at or near the property?
- Location of possible outdoor LA sources

1.2.2 Property Soil Sampling

The purpose of soil sampling was to identify outdoor soil sources of LA. Based on the assumption that visible vermiculite (LA source materials) would be removed, samples were not collected from areas where visible vermiculite was identified. However, to evaluate other soils without visible vermiculite, surface soil samples were collected. Surface soils (0 to 6 inches in disturbed areas and 0 to 1 inch in non-disturbed areas) were chosen because LA at the surface poses the greatest threat for direct exposure. At the end of the 2002 field season approximately 10,525 soil samples were collected as part of the CSS investigation.

As mentioned above, only a limited number of CSS soil samples have been analyzed. However, these results indicate that soil samples collected in areas without visible vermiculite typically indicate the absence of LA. Based on this initial data and for the purposes of this Technical Memorandum, it has been assumed that all CSS soil samples will be non-detect (ND) for LA.

→ this assumption will be reevaluated.

1.3 Property Categories

A total of eight property categories have been selected during discussions with EPA. These property categories and associated category totals are the primary focus of this Technical Memorandum. These categories are:

1. Indoor Only Contamination Confirmed
2. Outdoor Only Contamination Confirmed
3. Indoor and Outdoor Contamination Confirmed
4. Indoor Only Sampling Required
5. Outdoor Only Sampling Required
6. Indoor and Outdoor Sampling Required
7. Indoor Contamination Confirmed and Outdoor Only Sampling Required
8. No Further Action

Description

3 decisions
each property
attic
indoor
outdoor

These categories were chosen in order to segregate properties based on what is known about the property and what needs to be determined about the property. What needs to be determined about any particular property (data gaps) in order to

finish the characterization will be the objective of the 2003 field season. This information will allow for the selection of the appropriate ~~removal~~ response(s).
cleaning

Table 1 and Table 2 (see attachments) present the decision process for determining how properties were placed into each category. This decision process used available information and specific guiding assumptions. These assumptions are:

- All soil samples not yet analyzed will be considered ND for LA *→ how will we know it's this*
- If indoor or outdoor contamination is confirmed, indoor dust samples will be collected
- If vermiculite was removed in the past but is still visible, a ~~removal response~~ (cleaning) will occur
- If vermiculite was removed in the past but is not visible, a dust sample will be collected to determine if cleaning will be required
- If access cannot be gained into a closed or sealed attic an indoor dust sample will be collected to determine if cleaning will be required
- Current vermiculite insulation is an indication of indoor contamination
- A dust sample result > 5000 (S/cm²) is an indication of indoor contamination *need word - here*
- A soil sample result greater than non-detect is an indication of outdoor contamination.
- Visible vermiculite in specific use areas (i.e., current or former flowerbeds, gardens, and planters) will be remediated. Visible vermiculite in non-use areas (i.e., yards and driveways) will be sampled. *why*
- If one or more of the secondary questions (i.e., mining history, asbestos related disease, or vermiculite in building materials) receives a yes response, and that property does not currently have or never has had vermiculite insulation indoor dust samples will be collected

In addition, properties without potential LA sources but have an identified vermiculite source on an adjacent property may need to have further characterization. This decision is still pending, however, properties adjacent to known source areas such as the Former Export Plant will have further characterization even if there are no longer any sources located on the property. *wording*

Table 3 presents a summary of the number of properties in each of the eight categories. These totals will be periodically revised as additional data becomes available (e.g., analytical soil sample results). CDM will inform EPA of revisions to

these totals and discuss any potential changes to the 2003 field season based on these revisions.

Table 3

Property Categories	Number of Properties
Indoor Only Contamination Confirmed	199
Outdoor Only Contamination Confirmed	634
Indoor and Outdoor Contamination Confirmed	117
Indoor Only Sampling Required	442
Outdoor Only Sampling Required	173
Indoor and Outdoor Sampling Required	210
Indoor Contamination Confirmed and Outdoor Only Sampling Required	682
No Further Action	893

1.4 Field Activities for the 2003 Field Season

Additional information will be collected at each of the properties in the above categories in order to determine what remedial actions are required. As the residential removal program begins, a portion of the identified data gaps will be addressed by the pre-design inspection activities with the remainder of the data gaps addressed by the reconnaissance and soil sampling (i.e., RI) activities. Table 4 indicates which program will be responsible for collecting the information required for each category. Below is a summary of the additional information that will be collected at each of the properties to determine the remedial actions required.

Table 4

Property Categories	Group Performing Additional Sampling
Indoor Only Contamination Confirmed	Pre-design
Outdoor Only Contamination Confirmed	Pre-design
Indoor and Outdoor Contamination Confirmed	Pre-design
Indoor Only Sampling Required	RI
Outdoor Only Sampling Required	Pre-design/RI
Indoor and Outdoor Sampling Required	Pre-design/RI
Indoor Contamination Confirmed and Outdoor Only Sampling Required	Pre-design/RI
No Further Action	Not Applicable

1.4.1 Indoor Only Contamination Confirmed

Vermiculite containing insulation (VCI) will be removed from these properties. Dust samples will be collected from the living space of each property with VCI to

determine if the living space contains LA and requires an interior cleaning in addition to removal of the vermiculite.

1.4.2 Outdoor Only Contamination Confirmed

Vermiculite present in flowerbeds, former flowerbeds, gardens, former gardens, and planters will be removed. Dust samples will be collected from the living space to determine if LA was tracked indoors. If LA is found to be present above 5,000 S/cm² an interior cleaning will also be conducted.

1.4.3 Indoor and Outdoor Contamination Confirmed

VCI and vermiculite present in flowerbeds, former flowerbeds, gardens, former gardens, and planters will be removed. Dust samples will be collected from the living space of each property. If LA is found to be present above 5,000 S/cm², an interior cleaning will also be conducted.

1.4.4 Indoor Only Sampling Required

Properties in this category have either an indication of secondary indoor sources and/or the presence or absence of VCI is not confirmed or VCI was present in the past. At properties where the presence or absence of VCI is not confirmed, intrusive procedures (i.e. drilling and optical scope) will be used to determine if VCI is present. If the presence of VCI cannot be determined with intrusive procedures, a dust sample will be collected in the living space to determine if LA is present in the living space. If LA is found to be present above 5,000 S/cm², the property will be placed in the indoor contamination confirmed category and an interior cleaning will be conducted.

At properties that have indications of secondary indoor sources, a dust sample will be collected in the living space to determine if LA is present in the living space. If LA is found to be present above 5,000 S/cm², the property will be placed in the indoor contamination confirmed category and an interior cleaning will be conducted.

Properties that had VCI in the past will be revisited to determine if remnants of vermiculite remain in the attic. If remnants are found, the property will be placed in the indoor contamination confirmed category and a cleaning will be conducted. In addition, dust samples will be collected from the living space of the property. If LA is found to be present above 5,000 S/cm², an interior cleaning will also be conducted. If remnants are not found, a dust sample will be collected from the attic area and the living space to determine if LA is present. If LA is found to be present above 5,000 S/cm², the property will be placed in the indoor contamination confirmed category and an attic/interior cleaning will be conducted.

1.4.5 Outdoor Only Sampling Required

Properties in this category have vermiculite present over a large portion of the property (i.e. yards and driveways). To determine if these areas require removal, soil samples will be collected to determine if the areas contain LA. In addition, dust samples will be collected from the living space and archived. If LA is found to be present in the soils above the project criteria, the dust samples will analyzed. Depending on the results of the dust samples, the properties in this category will be placed in the indoor and outdoor contamination confirmed or outdoor contamination confirmed category.

1.4.6 Indoor and Outdoor Sampling Required

Properties in this category have both indications stated in the indoor only sampling and outdoor only sampling required sections. Properties will require indoor investigation and/or sampling and outdoor sampling described above. The results of the samples will be used to place the property into an appropriate contamination category (i.e., indoor only contamination confirmed, outdoor only contamination confirmed, or indoor and outdoor contamination confirmed).

1.4.7 Indoor Contamination Confirmed and Outdoor Only Sampling Required

Properties in this category have confirmed indoor contamination, but require additional sampling to determine if remediation is required outdoors. Additional soil samples will be collected and removal decisions made according to the outdoor sampling section above.

1.4.8 No Further Action

Properties in this category have no indications of primary or secondary LA sources indoor or outdoors. No further investigation is required at these properties and remediation is not required.

1.5 Summary

Properties visited during the 2002 CSS program were screened for the presence or absence of potential sources of LA. The results of the CSS were used to place properties into categories that determine the appropriate remedial action required, identify properties where additional data is required to determine the appropriate remedial action, and properties where no remedial action is required. Based on the categories and the rational detailed above, additional information required to make remedial decisions will be collected during the 2003 field season. The focus of this effort will be to ensure all data collected to make remedial decision is completed and the CSS is concluded in the study area. Once the CSS is completed and all additional information is collected, all properties in the study area will have data to support placement into one of four categories: indoor only contamination confirmed; outdoor

only contamination confirmed; indoor and outdoor contamination confirmed; or no further action is required.

Attachments

Table 2: Property Categories - Query Criteria and Property Totals

Property Category	Current vermiculite insulation	Past vermiculite insulation	Dust samples	Soil samples collected or results	Location of visible vermiculite	Mining History	Asbestos Related Disease	Vermiculite in building materials	Primary sources at adjacent properties*	Program to conduct sampling	No. of Properties	Cumulative No. of Unique Properties
Indoor Only Contamination Confirmed	Yes	All	All	= 0, NSR	Blanks	All	All	All	N/A	Removal	196	199
	All	All	≠0, ≠ND	= 0, NSR	Blanks	All	All	All	N/A	Removal	9	
Outdoor Only Contamination Confirmed	No	No	= 0, ND	≠0, ≠NSR	Blanks or Expected	All	All	All	N/A	Removal	356	634
	No	No	= 0, ND	All	Expected	All	All	All	N/A	Removal	391	
Indoor and Outdoor Contamination Confirmed	Yes	All	All	All	Expected	All	All	All	N/A	Removal	91	117
	Yes	All	All	≠0, ≠NSR	Blank or Expected	All	All	All	N/A	Removal	45	
	All	All	≠0, ≠ND	≠0, ≠NSR	Blank or Expected	All	All	All	N/A	Removal	6	
	All	All	≠0, ≠ND	All	Expected	All	All	All	N/A	Removal	3	
	No	Yes	All	= 0, NSR	Blanks	All	All	All	N/A	Remedial	2	
Indoor Only Sampling Required	Unknown	All	All	= 0, NSR	Blanks	All	All	All	N/A	Remedial	128	442
	No	No	ND	= 0, NSR	Blanks	Yes	All	All	N/A	Remedial	192	
	No	No	ND	= 0, NSR	Blanks	All	Yes	All	N/A	Remedial	177	
	No	No	ND	= 0, NSR	Blanks	All	All	Yes	N/A	Remedial	19	
	No	No	= 0, ND	All	Both, D&Y	No	No	No	N/A	Removal	173	
Outdoor Only Sampling Required	No	No	= 0, ND	All	D&Y	No	No	No	N/A	Remedial	47	47
	No	Yes	All	All	Both, D&Y	All	All	All	N/A	Removal	9	
Indoor and Outdoor Sampling Required	Unknown	All	All	All	Both, D&Y	All	All	All	N/A	Removal	40	155
	No	No	ND	All	Both, D&Y	Yes	All	All	N/A	Removal	65	
	No	No	ND	All	Both, D&Y	All	Yes	All	N/A	Removal	68	
	No	No	ND	All	Both, D&Y	All	All	Yes	N/A	Removal	13	
	No	Yes	All	All	D&Y	All	All	All	N/A	Remedial	3	
	Unknown	All	All	All	D&Y	All	All	All	N/A	Remedial	10	
	No	No	ND	All	D&Y	Yes	All	All	N/A	Remedial	27	
	No	No	ND	All	D&Y	All	Yes	All	N/A	Remedial	22	
	No	No	ND	All	D&Y	All	All	Yes	N/A	Remedial	6	
	Yes	All	All	All	Both, D&Y	All	All	All	N/A	Removal	136	
Indoor Contamination Confirmed and Outdoor Only Sampling Required	All	All	≠0, ≠ND	All	Both, D&Y	All	All	All	N/A	Removal	528	504
	Yes	All	All	All	D&Y	All	All	All	N/A	Remedial	46	
	All	All	≠0, ≠ND	All	D&Y	All	All	All	N/A	Remedial	185	
	No	No	= 0, ND	= 0, NSR	Blanks	No/Unknown	No/Unknown	No/Unknown	N/A	-	907	

* Did not use this category to make decisions. Will only use this when property is adjacent to known source (i.e., screening plant)
N/A - Not applicable
NSR - No Soil Results
Blanks - No visible vermiculite outdoor
≠0, ≠ND - At least 1 dust sample > 5000
≠0, ≠NSR - At least 1 soil sample > ND
ND - No dust samples taken
Expected - flowerbeds, gardens, former flowerbeds, former gardens, planters
D&Y - Driveway and Yard
Both - Driveway and Yard and Expected

Table 1: Property Categories - Decision Process

Property Category	Current vermiculite insulation	Past vermiculite insulation	Dust samples	Soil samples collected or results	Location of visible vermiculite	Mining History	Asbestos Related Disease	Vermiculite in building materials	Primary sources at adjacent properties
Information Source (CSS question numbers refer to the CSS question number in V2)	CSS IFF Question	CSS IFF Question	Dust sample results	Soil sample results	IFFs	CSS IFF Question	CSS IFF Question	CSS IFF Question	Mapping
Indoor Only Contamination Confirmed	Yes	And/Or	If available >5,000 S/cm ²	All ND	None				
Outdoor Only Contamination Confirmed	No	And	If available <5,000 S/cm ²	At least one > ND	Flowerbeds Garden Former flowerbeds Former garden Planters				
Indoor and Outdoor Contamination Confirmed	Yes	And/Or	If available >5,000 S/cm ²	At least one > ND	Flowerbeds Garden Former flowerbeds Former garden Planters				
Indoor Only Sampling Required	No or Unknown	Yes		All ND	None	Yes	Yes	Yes	Yes
Outdoor Only Sampling Required	No	No	If available <5,000 S/cm ²		Yard/Driveway And/or yard/driveway and	No	No	No	No
Indoor and Outdoor Sampling Required	No or Unknown	Yes			Yard/Driveway And/or yard/driveway and	Yes	Yes	Yes	Yes
Indoor Contamination Confirmed and Outdoor Only Sampling Required	Yes		If available >5,000 S/cm ²		Yard/Driveway And/or yard/driveway and	And/Or	And/Or	And/Or	
No Further Action	No	No	If available <5,000 S/cm ²	All ND	None	No or Unknown	No or Unknown	No or Unknown	No